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EXAMINER	
RODRIGUEZ, GLENDA P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,089	EGAN, CURTIS W.	
	Examiner	Art Unit	
	Glenda P. Rodriguez	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 2, 3, 4, 19, 21, 22, 23, 24, 37 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Lim et al (US Patent No. 6, 100, 683).

Regarding Claims 1 and 21, Lim et al. teach a method for detecting flaws in the disk drive, comprising:

> Sampling a signal derived from at least a portion of a track on a disk to obtain n samples (Col. 1, Lines 54-58 and Col. 3, Lines 10-16. Lim et al. teach that during the read operation, the disk has to determine from magnetizing the bit cell peaks being either 1 or 0. Col. 4, Lines 16-31 and Line 42-43. Lim et al. teach that during a read operation, the disk proceeds to sample read signal.);
>
> Deriving a value from m of said n samples (Col. 4, Lines 32-41. Lim et al. teach deriving a value of a standard deviation from the samples taken from the read operation.);

Comparing said derived value to a threshold value (Col. 4, Lines 44-46).

Regarding Claims 2, 22 and 37, Lim et al. teach all the limitations of Claim 1 and 21. Lim et al. further teach generating a signal if said value from said m samples is less than said threshold value is determined to be unacceptable (Col. 4, Lines 46-55).

Regarding Claim 3 and 23, Lim et al. teach all the limitations of Claim 1 and 21. Lim et al. further teach generating a signal if said value from said m samples is less than said threshold value is less than said threshold value (See Fig. 3, Element 214 and END, where Lim et al. depicts that when the value is less than the threshold it signals the operation to end.).

Regarding Claim 4 and 24, Lim et al. teach all the limitations of Claim 1 and 21. Lim et al. further teach generating a signal if said value derived from said m samples in not greater than said threshold value (See Fig. 3, Element 214 and END, where Lim et al. depicts that when the value is not greater than the threshold it signals the operation to end.).

Regarding Claim 19, Lim et al. teach all the limitations of Claim 1. Lim et al. also teaches that n is greater than 1 (Col. 1, Lines 54-58 and Col. 5, Lines 10-22).

Regarding Claim 38, Lim et al. teach a hard disk drive, comprising:

A base (Conventional substrate when building a disk drive);

A disk comprising a plurality of data tracks arranged concentrically about a spindle (Fig. 1, Elements 111, 102 and 104, where Lim et al. depicts the concentric tracks.);

A transducer head for reading and writing information to said data tracks, wherein said transducer head is movable in a radial direction with respect to said disk to address a selected one of said plurality of data tracks (Fig. 1, Element 112, where the head is attached to a rotating VCM thus the head moves in a radial direction in the surface of the disk);

A voice coil motor, interconnected to said to said transducer head, for moving said transducer head with respect to said data tracks (Fig. 1, Element 104);

And a channel, interconnected to said transducer head, wherein in said signal derived from information encoded in bit cells in a one of said data tracks is read by said transducer head and is transmitted to said channel (Col. 1, Lines 55-58 and Col. 3, Lines 10-16), wherein in a flaw detection mode said information encoded in said data tracks is encoded in a known pattern, wherein in said flaw detection mode said signal is sampled at least n times (Pat. No. 6, 100, 683; Col. 1, Lines 54-58 and Col. 4, Lines 16-31 and Line 42-43. Lim et al. teach that during a read operation, the disk proceeds to sample read signal), wherein n samples are used to derive a first value (Pat. No. 6, 100, 683; Col. 4, Lines 32-41. Lim et al. teach deriving a value of a standard deviation from the samples taken from the read operation.), and wherein said first value is compared to a threshold value (Pat. No. 6, 100, 683; Col. 4, Lines 44-46).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Tuttle et al. (US Patent No.). Lim et al. teach all the limitations of Claim 1. Lim et al. ('683) fail to teach wherein the m samples are taken at times corresponding to expected peak values in a sampled signal. However, this feature is well known in the art as disclosed by Tuttle et al., wherein it teaches the samples to be taken at its expected peak values (Pat. No. 6, 646, 822; Col. 19, Lines 43-57. Tuttle et al. teaches using equations that are able to extract the peak values according to the signal being passed through the channel). It would have been obvious to a person of ordinary skill in the art, at the time the was made, to modify Lim et al.'s invention to extract the peak values in order to detect the pulses being transmitted through the channel.

Claims 6, 8, 25 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Sloan et al. (US Patent No. 6, 252, 731).

Regarding Claim 6 and 25, Lim et al. ('683) teach all the limitations of Claim 1 and 21. Lim et al. ('683) fail to teach wherein said m samples has a magnitude, and wherein said step of deriving a value from m of said n samples comprises calculating a

sum comprising said magnitude of each of said m samples. However, this feature is well known in the art as disclosed by Sloan et al., wherein it teaches that takes encoded digital data and generates a byte which represents the sum of the data that was read from the disk (Pat. No. 6, 252, 731; Col. 6, Lines 9-24). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to generate an integral from the sampled data in order to generate an optimum value for a selected parameter affecting the disc (Pat. No. 6, 252, 731; Abstract).

Regarding Claim 8 and 32, Lim et al. ('683) teach all the limitations of Claim 1 and 21. Lim et al. ('683) fail to teach wherein said m samples has a magnitude, and wherein said step of deriving a value from m of said n samples comprises calculating an integral comprising said magnitude of each of said m samples. However, this feature is well known in the art as disclosed by Sloan et al., wherein it teaches that takes encoded digital data and generates a byte which represents the integral of the data that was read from the disk (Pat. No. 6, 252, 731; Col. 6, Lines 9-24). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to generate an integral from the sampled data in order to generate an optimum value for a selected parameter affecting the disc (Pat. No. 6, 252, 731; Abstract).

Claims 7 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Lim et al. (US Patent No. 6, 606, 211). Lim et al. ('683) teach all the limitations of Claim 1 and 21, respectively. Lim et al. ('683)

fails to teach obtaining an average value of said m samples. However, this feature is well known in the art as disclosed by Lim et al. ('211), wherein it teaches that from the sampled values it then calculates an average (Pat. No. 6, 606, 211; Col. 4, Lines 21-44). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to detect the average from the sampled values in order to detect the defects in a recordable medium (Pat. No. 6, 606, 211; Abstract).

Claims 9 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Livingston (US Patent No. 6, 513, 141). Lim et al. teach all the limitations of Claims 1 and 21, respectively. Lim et al. ('683) fail to teach calculating a difference between a value of a magnitude of each of the m samples and an optimal magnitude. However, this feature is well known in the art as disclosed by Livingston, wherein it teaches a medium that calculates a difference between an estimated (or optimal) value being subtracted with an actual signals that were derived to attain an error signal (Pat. No. 6, 513, 141; Col. 13, Lines 20-28). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to calculate the difference in the signal in order to attain an signal in order to control the errors.

Claims 10, 12, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) and Livingston (US Patent No. 6, 513, 141) as applied to claims 9 and 27, respectively, above, and further in view of Sloan et al. (US Patent No. 6, 252, 731).

Regarding Claim 10 and 28, Lim et al. ('683) and Livingston teach all the limitations of Claim 9 and 27, respectively. Lim et al. ('683) and Livingston fail to teach wherein said m samples has a magnitude, and wherein said step of deriving a value from m of said n samples comprises calculating a sum comprising said magnitude of each of said differences. However, this feature is well known in the art as disclosed by Sloan et al., wherein it teaches that takes encoded digital data and generates a byte which represents the sum of the data that was read from the disk (Pat. No. 6, 252, 731; Col. 6, Lines 9-24). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al. and Livingston's invention in order to generate an integral from the sampled data in order to generate an optimum value for a selected parameter affecting the disc (Pat. No. 6, 252, 731; Abstract).

Regarding Claim 12 and 30, Lim et al. ('683) and Livingston teach all the limitations of Claim 9 and 27, respectively. Lim et al. ('683) and Livingston fail to teach wherein said m samples has a magnitude, and wherein said step of deriving a value from m of said n samples comprises calculating an integral comprising said magnitude of each of said differences. However, this feature is well known in the art as disclosed by Sloan et al., wherein it teaches that takes encoded digital data and generates a byte which represents the integral of the data that was read from the disk (Pat. No. 6, 252, 731; Col. 6, Lines 9-24). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al. and Livingston's invention in order to generate an integral from the sampled data in order to generate an optimum value for a selected parameter affecting the disc (Pat. No. 6, 252, 731; Abstract).

Claim 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) and Livingston (US Patent No. 6, 513, 141) as applied to claims 9 and 27 above, and further in view of Lim et al. (US Patent No. 6, 606, 211). Lim et al. ('683) and Livingston teach all the limitations of Claims 9 and 27, respectively. Lim et al. ('683) fails to teach obtaining an average value of said m samples. However, this feature is well known in the art as disclosed by Lim et al. ('211), wherein it teaches that from the sampled values it then calculates an average (Pat. No. 6, 606, 211; Col. 4, Lines 21-44). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to detect the average from the sampled values in order to detect the defects in a recordable medium (Pat. No. 6, 606, 211; Abstract).

Claim 16, 18, 20 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683).

Regarding Claim 16, Lim et al. ('683) teach all the limitations of Claim 1. Lim et al. ('683) fails to teach that m is equal to n. It would have been obvious to a person of ordinary skill in the art to make n equal to m if during the sampling period, the number of n samples would have been the same number as m because depends on n. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to make m equal to n in order to verify the threshold according to a specific amount of samples (Pat. No. 6, 100, 683; Abstract).

Regarding Claim 18, Lim et al. ('683) teach all the limitations of Claim 1. Lim et al. ('683) teach all the limitations of Claim 1. Lim et al. ('683) fails to teach that m is

equal to n. It would have been obvious to a person of ordinary skill in the art to make n equal to m if during the sampling period, the number of n samples would have been greater than the number as m because depends on n. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to make m smaller to n in order to verify the threshold according to a specific amount of samples (Pat. No. 6, 100, 683; Abstract).

Regarding Claim 20, Lim et al. ('683) teach all the limitations of Claim 1. Lim et al. ('683) fail to teach wherein said m samples are significant samples. It would have been obvious to a person of ordinary skill in the art to know that the samples are significant because these values derived from the sampled values aid the medium in determining if the derived value surpasses the threshold determining an error. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to indicate if the measured amount surpasses the threshold, in order to indicate an error (Pat. No. 6, 100, 683; Abstract).

Regarding Claim 35, Lim et al. ('683) teach all the limitations of Claim 21. Lim et al. fail to teach wherein step of reading first, second, third and fourth bit cells and deriving the samples from those first, second third and fourth signals. However, Lim et al. ('683) teach a method that samples a number of bit cells and derives a number from those samples taken from bit cells. It would have been obvious to a person of ordinary skill in the art to know that in order to derive a value, multiple samples need to be used (Col. 1, Lines 54-58 and Col. 3, Lines 10-16. Lim et al. uses multiple samples from magnetic transitions in the disk to calculate a value that is compared to a threshold, Col.

1, Lines 54-58 and Col. 3, Lines 10-16.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to have a plurality of samples in order to calculate a value to be compared to a threshold (Pat. No. 6, 100, 683; Abstract).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Park (US Patent No. 6, 208, 476). Lim et al. teach all the limitations of Claim 2. Lim et al. ('683) fail to teach wherein providing a signal to a controller. However, this feature is known in the art as disclosed by Park, wherein it teaches that as a result of a comparison, it sends a signal to a controller to whether there were errors detected in the signal (Pat. No. 6, 208, 476; Col. 3, Line 64 to Coil. 4, Line 7). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to detect errors during the reproduction of the data (Col. 4, Lines 3-7).

Claim 13, 14, 31, 33, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Zook (US Patent No. 5, 793, 548).

Regarding Claim 34, Lim et al. ('683) teach all the limitation of Claim 21. Lim et al. ('683) fail to teach magnetizing in at least one of two directions each bit cell included in a plurality of bit cells comprising magnetizing first and second bit cell in said first direction and magnetizing third and fourth bit cell in a second direction. However, this feature is well known in the art as disclosed by Zook, wherein it teaches that A 2T sampled sequence generates a sample sequence that contains by magnetizing first and

second bit cell in said first direction and magnetizing third and fourth bit cell in a second direction (Pat. No. 5, 793, 548; Col. 8, Lines 47-53). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to have a 2T sample sequence in order to detect flaws when processing the signal in the channel.

Regarding Claim 36, Lim et al. ('683) teach all the limitations of Claim 21. Lim et al. ('683) fail to teach wherein said step of magnetizing each bit cell included in a plurality of bit cells on said disk comprises creating an iT pattern of encoded signals. However, this feature is well known in the art as disclosed by Zook, wherein it teaches magnetizing each bit cell included in a plurality of bit cells on said disk comprises creating an 2T pattern of encoded signals (i meaning any integer) (Pat. No. 5, 793, 548; Col. 8, Lines 43-53). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to have a 2T sample sequence in order to detect flaws when processing the signal in the channel.

Regarding Claims 13 and 31, Lim et al. ('683) teach all the limitations of Claims 1 and 21, respectively. Lim et al. ('683) fail to teach wherein step of deriving a value from m comprises filtering said m samples. However, this feature is well known in the art as disclosed by Zook, wherein it teaches the use of a filter during the step of deriving a value from m (Pat. No. 5, 793, 548; Col. 6, Lines 16-21). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to filter the signal in order for the derived value to be close to the desired response (Pat. No. 5, 793, 548; Col. 6, Lines 16-23).

Regarding Claim 14 and 33, Lim et al. ('683) teach all the limitations of Claims 1 and 21, respectively. Lim et al. ('683) fail to teach wherein a part of the data pattern is ecoded using a 2T pattern and the filter is given by the function: $1 - D^2 + D^4 - D^6 +$ etc. However, this feature is well known in the art as disclosed by Zook, wherein it teaches that for the 2T pattern it uses a PR4 (which is $(1 + D)(1 - D) = 1 - D^2$, the transfer function above in its simplest form) (Pat. No. 5, 793, 548; Col. 13, Table 1). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to filter the signal in order for the derived value to be close to the desired response (Pat. No. 5, 793, 548; Col. 6, Lines 16-23).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) and Zook (US Patent No. 5, 793, 548) as applied to claim 13 above, and further in view of Muramatsu (US Patent No. 6, 381, 203). Lim et al. ('683) and Zook teach all the limitations of Claim 13. Lim et al. and Zook fail to teach wherein a part of the data pattern is encoded using a 3T pattern and the filter is given by the function: $1 + D - D^3 - D^4 + D^6 +$ etc. However, this feature is well known in the art as disclosed by Muramatsu wherein it teaches a 3T pattern that uses a transversal filter wherein it filter out the 3T signal (Pat. No. 6, 381, 203; Col. 1, Lines 57-66. It would have been obvious to a person of ordinary skill in the art to know that the filter would have that delay characteristic in order to extract the desired 3T sample.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al. and Zook's invention to use a filter with those characteristics in order to extract the desired 3T signal.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Park (US Patent No. 6, 208, 476). Lim et al. ('683) teach all the limitations of Claim 38. Lim et al. ('683) fail to teach wherein providing a signal to a controller. However, this feature is known in the art as disclosed by Park, wherein it teaches that as a result of a comparison, it sends a signal to a controller to whether there were errors detected in the signal (Pat. No. 6, 208, 476; Col. 3, Line 64 to Coil. 4, Line 7). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Lim et al.'s invention in order to detect errors during the reproduction of the data (Pat. No. 5, 793, 548; Col. 4, Lines 3-7).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) as applied to claim 38 above, and further in view of Zook (US Patent No. 5, 793, 548). Lim et al. ('683) teach all the limitations of Claim 38. Lim et al. ('683) fail to teach wherein a part of the data pattern is encoded using a 2T pattern and the filter is given by the function: 1 – D2 + D4 – D6 + etc. However, this feature is well known in the art as disclosed by Zook, wherein it teaches that for the 2T pattern it uses a PR4 (which is (1 + D) (1 - D) = 1 – D2, the transfer function above in its simplest form) (Pat. No. 5, 793, 548; Col. 13, Table 1). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to filter the signal in order for the derived value to be close to the desired response (Pat. No. 5, 793, 548; Col. 6, Lines 16-23).

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Muramatsu (US Patent No. 6, 381, 203). Lim et al. ('683) teach all the limitations of Claim 38. Lim et al. ('683) fail to teach wherein a part of the data pattern is encoded using a 3T pattern and the filter is given by the function: 1 + D –D3 - D4 + D6 + etc. However, this feature is well known in the art as disclosed by Muramatsu wherein it teaches a 3T pattern that uses a transversal filter wherein it filter out the 3T signal (Pat. No. 6, 381, 203; Col. 1, Lines 57-66. It would have been obvious to a person of ordinary skill in the art to know that the filter would have that delay characteristic in order to extract the desired 3T sample.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sloan et al. and Lim et al.'s invention to use a filter with those characteristics in order to extract the desired 3T signal.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (US Patent No. 6, 100, 683) in view of Cloke (US Patent No. 6, 411, 452). Sloan et al. and Lim et al. teach all the limitations of Claim 38. Sloan et al. and Lim et al. fail to teach the use of a shift register, a summing circuit and a comparator. However, these feature are well known in the art as disclosed by Cloke, wherein it teaches using a summing circuit, a shift register and a comparator (Pat. No. 6, 411, 452; Figs. 9A and 9C. Cloke teaches the channel with the elements of a summing circuit, a shift register and a comparator for manipulation of bits sampled from the disk.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to

modify Sloan et al. and Lim et al.'s invention in order to synchronously detect the data (Pat. No. 6, 411, 452; Col. 6, Lines 22-34).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pat. No. 6, 580, 768 to Jaquette and Pat. No. 6, 501, 607 to Keirn et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gpr

February 6, 2004.

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600